

What is claimed is:

1. A fountain-type electroplating apparatus with functions of voltage detection and flow rectification, comprising:
 - 5 an electroplating tank having a shell, a cathode electrode arranged on top of the shell, and an mesh shaped anode arranged at the bottom of the shell;
 - 10 a rectification device having a hull, a separating plate arranged under the mesh shaped anode and a pipe connecting to the hull for transporting an electrolyte therein, that the separating plate has at least a hole and is connected to and arranged inside the hull; and
 - 15 an overflow tank having an exit hole arranged at the bottom thereof; wherein the electroplating tank is positioned inside the overflow tank, and the rectification device is arranged under the electroplating tank.
2. The apparatus according to claim 1, wherein the apparatus further comprises a shielding ring arranged on top of the mesh shaped anode that the shielding ring has width ranged between 2~26mm.
3. The apparatus according to claim 1, wherein the separating plate has a hole location at the center thereof and the separating plate is inclined from the rim thereof toward the hole in an angle between 5~40 degree,
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4. The apparatus according to claim 3, wherein the shape of the separating plate is not limited to be any geometric shape, and the separating plate is extended from the central hole to toward the top of the pipe that a plurality of orifices having diameter between 0.5~4 mm are arranged at the end and the two extension part of the separating plate.
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5. The apparatus according to claim 1, wherein the rectification device further comprises:
 - 30 a baffle; and

- a strut having a first end connecting to the separating plate and a corresponding second end connecting to the baffle.
6. The apparatus according to claim 1, wherein the rectification device further comprises:
- 5 a disperser having plural pores;
- a guiding plate having plural orifices, which is connected to the hull;
- an agitator having an axial and at least a propelling blade arranged at the side of the axial; wherein, the axial of the agitator has a first end connecting to the disperser and a second end connecting to the
- 10 guiding plate 504.
7. The apparatus according to claim 1, wherein both the circumference of the substrate and the circumference of the mesh shaped anode have a plurality of joints.
- 15 8. The apparatus according to claim 7, wherein the circumference of the substrate has a first joint, a second joint and a third joint, and the three joints are spaced by an angle about 80~160 degrees from each other.
- 20 9. The apparatus according to claim 7, wherein the circumference of the mesh shaped anode has a first joint, a second joint and a third joint, and the three joints are spaced by an angle about 80~160 degrees from each other.
10. The apparatus according to claim 7, wherein the joints of the substrate is complementary arranged to the joints of the mesh shaped anode.
- 25 11. The apparatus according to claim 1, wherein the apparatus further comprising:
- a power supplier having a positive electrode and a negative electrode;
- a switcher having a first switching point and a corresponding second switching point;
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- a plurality of detection circuits, each having a first end and a second end and each of which is composed of a resistance parallel connecting to a voltmeter; and
- 5 a plurality of connecting line, each having one end connecting to a joint of the mesh shaped anode, and all of each having another ends connecting jointly to a node and further connecting to both the positive electrode and the first switching point;
- 10 wherein, the first end of one of the detection circuit is connected to the switch for switching between the first switch point and the second switching point, and the first ends of the other detection circuits are connected jointly to a node and further connected to both the negative electrode and the second switching point, in addition, all the second ends of the detection circuits are respectively connected to plural joints of the substrate.
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12. The apparatus according to claim 11, wherein the switcher includes a relay for switching between the first switching point and the second switching point.

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